

Abstract of the Disclosure

Improved methods and related apparatus are disclosed for efficiently recovering the heat of condensation from overhead vapor produced during separation of various components of dehydrogenation reaction effluent, particularly in ethylbenzene-to-styrene operations, by the use of at least a compressor to facilitate azeotropic vaporization of an ethylbenzene and water mixture within a preferred range of pressure/temperature conditions so as to minimize undesired polymerization reactions.